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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/750,480	12/28/2000	Mitchell R. Swartz		7970

7590 07/09/2003

Mitchell R. Swartz, ScD, EE, MD
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Weston, MA 02493

EXAMINER

PALABRICA, RICARDO J

ART UNIT	PAPER NUMBER
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3641

DATE MAILED: 07/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/750,480

Applicant(s)

SWARTZ, MITCHELL R.

Examiner

Rick Palabrica

Art Unit

3641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2002 and 04 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. Applicant's election with traverse in Paper No. 12, dated 3/1/02, of the embodiment shown in Fig. 2 and the monitoring configuration described in the specification on pages 5 through the top of page 15, is acknowledged. Applicant's election with traverse in Paper No. 4, dated 6/4/01, of palladium for the material to be loaded with a second material, and loading the second material by electrical means, is also acknowledged.

As to the traverse of the election requirement, the issues raised by the applicant have been addressed in the decision on applicant's petition under 37 CFR 1.181, dated 8/15/02.

2. Applicant filed the current application as a continuation of parent application, S/N 07/371,937. He stated in a Request for Continuation letter, dated 12/28/00, which accompanied the application, that no new matter has been added in the current application. A copy of original specification was included as Appendix A to the current application.

A review of the specifications of the two applications revealed that reference in the parent application to "electrochemically induced nuclear fusion reactions" (e.g., see p. A161, Appendix A) has been changed in the current application to "loading" (e.g. see p. 2 of the specification), ""nuclear fusion cell" (e.g., see p. A166 of Appendix A) has been changed to "loading system" (e.g., see p. 6 of the specification), "cold fusion

reactor" (e.g. see p. A167 of Appendix A) has been changed to "reactor" (e.g., see p. 9 of specification), etc. Therefore,

a) Unless the applicant, who can be his own lexicographer, declares that these two terms have identical meanings, this change in terminology from "nuclear fusion" to "loading" represents new matter. As such, the current application does not qualify as a continuation of the parent and therefore entitled only to the priority of its filing date, i.e., 12/28/2000.

b) If, as stated by the applicant, that there is no new matter in the current application such that it qualifies to have the benefit of the filing date of S/N 07/371,937, then term "loading" is the same as "nuclear fusion reaction."

Cases a) and b) above are discussed separately below.

Case b): "Loading" is identical to "Nuclear Fusion Reaction"

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to

which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The applicant states on page 4 of the specification that the process of loading is complicated, and the changes of deuterium loading into palladium is difficult because "the rate of desired reactions is very low." However, the applicant presents neither working examples nor description of an operating embodiment nor specific direction or guidance as to how to achieve the claimed results. Thus, although the applicant acknowledges that the process is complicated and difficult to monitor, he treats the process as though it is well known and readily reproducible. This paucity of information necessary for the exercise of the claimed invention is discussed in detail below.

On page 7, 1st paragraph, the applicant states that a mechanical system enables the cathode to vibrate between displacements. There is neither a written description nor enabling disclosure of this mechanical system.

On page 8, 2nd paragraph, the applicant discloses the reaction cell in Fig. 2. The disclosure is insufficient as to conditions existing inside the cell (e.g., pressure and temperature conditions). The disclosure is also insufficient as to how and in what manner these conditions are maintained, e.g., how the temperature is maintained at a given range. The disclosure is also insufficient as to ratio of the different masses involved, i.e., ratio of the thickness of "springy material" 13 to the thickness of cathode 1, ratio of mass 11 to the mass of cathode 1, ratio of three masses to each other, etc.

On page 10, line 5 of the specification, the applicant provides an unnumbered equation of motion. The disclosure is insufficient as to how and in what manner the

values of the constants, k and b, are evaluated, and what approximations, if any, are used in their evaluation. Also, the associated Fig. 1 depicts the cathode as being structurally held and pivoting at a single location at the top of the chamber. The disclosure is insufficient as to how and in what manner the effect of friction at the pivot point is taken into account in the equation.

On page 11, line 3 of the specification, the applicant shows an unnumbered equation for the square of the natural frequency. The disclosure is insufficient how and in what manner this equation can be derived from the unnumbered linear natural angular equation on page 10 and the quality factor Q at the top of page 11.

On page 12 of the specification, the applicant presents Table 1. The disclosure is insufficient as to the units of the quantities shown.

On page 12, 1st paragraph of the specification, the applicant states that an expected frequency change of approximately 6 to 10% of the initial frequency can be associated with full loading (a.k.a. nuclear fusion). The disclosure is insufficient as to providing examples of the detection of said frequency change.

There is neither an adequate description not enabling disclosure of the parameters of a specific operative embodiment of the invention, including the exact composition of the electrolyte (including impurities and amounts thereof), atomic or weight ratio of metal electrodes to electrolyte, dimensional ratio of electrodes to their spacing (i.e., sizes of anode and cathode relative to the space between them), surface area-to-volume requirement for the reactor, ratio of masses 1, 11 and 13 to each other, thickness ratio of the "springy material" 13 to cathode 1, required magnetic strength of

(e.g., see page A167 of the parent specification that is attached to the current application).

As set forth more fully below, the disclosure does not contain reputable evidence that is sufficient to support any allegations or claims that the invention produces “nuclear reactions” by “cold fusion”, that any allegations or claims of the production of cold fusion are valid and reproducible, nor that the invention as disclosed is capable of operating as indicated and capable of providing the intended output.

This concept of producing nuclear reactions by “cold fusion” was, in general, publicly announced by Fleischmann and Pons (hereinafter referred to as “F and P”) on March 23, 1989 (see the 3/24/89 article by D. Braaten). Applicant’s invention is thus, at most, no more than a variation of the cold fusion concept or system set forth by F and P.

As set forth more fully below, this “cold fusion” concept of producing nuclear reactions is still no more than just an unproven concept.

Subsequent to the announcement of this cold fusion concept by F and P, many laboratories have attempted to confirm the results of F and P.

The results of these attempts at confirmation were primarily negative and even of the few initial positive results, these were generally either retracted or shown to be in error by subsequent experimenters (e.g., see the article by Stipp in the Wall Street Journal and the article by Browne in The New York Times (particularly page A22)).

The general consensus by those skilled in the art and working at these various laboratories is that the assertions by F and P were based on experimental errors (e.g., see The New York Times article by Browne, Kreysa et al., Lewis et al., Hilts, Horanyi, Ohashi et al., MisKelly et al. and Chapline).

coil 41, distance between the coil and the cell, length of time the process has to be carried out, pressure and temperature conditions inside the reaction cell and how these conditions are maintained within a given range, mechanical means to support the cathode at a pivot point, etc.

As further examples of this lack of enabling disclosure, the electrical power system (box 50 in Fig. 1), the optical irradiator subsystem (box 30 in Fig. 1), the optical detection subsystem (box 31 in Fig. 1), the central control unit (box 23 in Fig. 1) and the power source (box 42 in Fig. 1) are essentially "black boxes" with no description of the internals thereof. The disclosure is insufficient in failing to set forth in an adequate and sufficient fashion, a description of these components that would enable the system to perform its intended function. If the applicant is of the opinion that there is a description in the prior art (in the form of literature, etc. having a date prior to the filing date of this application) of the internals of each black box, copies of said literature, etc. must be submitted for appropriate review by the Office. See In re Ghiron et al., 169 USPQ 723, 727.

Claim 1 recites a "process for producing a product using a material which is electrochemically loaded with a second material." The disclosure is insufficient as to what exactly is this so-called "product." Based on the claim language, this "product" is not a material loaded with a second material because said loaded material is used to produce the "product." Based on the specification of applicant's cited parent application, i.e., S/N 07/371,937, the only possible "products" that can be formed in the disclosed and claimed method are nuclear fusion products, specifically "cold fusion" products

Note for example, that Kreysa et al. on page 440 state that, "We have repeated the heat balance measurements more than 10 times and never found a significant heat excess within the accuracy limits of $\pm 5\%$." Kreysa et al. also refer to various possible sources of error that could lead to erroneous conclusion that nuclear reactions and excess heat were produced.

Hilts states that the MIT experiments failed to produce any of the excess heat reported by the Utah group.

Lewis et al. state in the summary on page 525 that they found no evidence of excess enthalpy in their experiments and, they refer to various possible sources of error which could lead to the erroneous conclusion that nuclear reactions and excess heat were produced (note pages 528-530).

Both Hilts and Lewis et al. indicate that in any determination of excess heat, one must determine the total amount of energy produced (as heat and chemical energy) integrated over the whole period of cell operation, versus the total energy input.

It was also the general consensus by those skilled in the art and working at these various laboratories that there is no reputable evidence of neutron, gamma ray, tritium or helium production to support the allegation or claim that nuclear reactions are taking place, nor is there any reputable evidence to support the allegation or claim of excess heat production. See for example (in addition to the above listed references) page A14 of the 7/13/89 edition of The Washington Post, Cooke, Alber et al., Faller et al, Cribier et al., Hajdas et al., Shani et al., Ziegler et al., Price et al., Schrieder et al., and pages A3 of the 3/29/90 edition of The Washington Post.

Of particular interest is page A3 of the 3/29/90 edition of The Washington Post that refers to the negative findings of a physicist who had tested Pon's own cold fusion apparatus for nuclear output (for a more complete analysis of said "negative findings",

note the article by Salamon et al.). Also of interest in this respect is the Cooke reference that, on pages 4 and 5, refers to the attempts at Harwell to obtain "cold fusion" and that Fleischmann (of F and P) had requested help from Harwell in verifying the cold fusion claims. Said page 5 also indicates that data was collected in Frascati-type (i.e. gaseous) experiments.

The last paragraph on said page 5 states:

"After three months of around-the-clock work at a cost of over a half million dollars, the project was terminated on June 15. This program is believed to be one of the most comprehensive worldwide with as many as 30 cells operating at a time and over 100 different experiments performed. The final results of this monumental effort in the words of the official press release was, " In none of these experiments was there any evidence of fusion taking place under electrochemical conditions". It should also be added that there was no evidence of excess heat generated by any of their cells." (Underlining added).

Applicant's specification contains assumptions and speculation as to how and in what manner, his invention will operate. However, applicant has presented no reputable factual evidence to support his assumptions and speculation regarding a reproducible, sustainable cold fusion and low temperature transmutation reactions.

Note in this respect that the examiner (as set forth above) has presented documentary evidence that there are no operative cold fusion systems that actually produce nuclear reaction products.

The disclosure is thus insufficient and non-enabling as to exactly what all is necessary to actually present a reproducible, sustainable cold fusion and low

temperature nuclear reaction, and, as to what would cause such reactions to actually take place in the applicant's system.

It is apparent from the specification that applicants' concept or theory involves a "cold fusion" system based on the "cold fusion" systems that came about from the work of F and P, is workable or operative, only if these systems are already operative.

However, as set forth above, the examiner has presented evidence showing that in such cold fusion systems, the claims of nuclear reaction products, are not reproducible or even obtainable. It consequently must follow that the claims of nuclear fusion reactions are not reproducible or even obtainable with applicant's invention. While applicant may have set forth theoretical concepts, it is well known in the cold fusion field that theory and reality have a habit of not coinciding. There is no evidence to indicate that the applicant has so succeeded where others have failed, in arriving at an operative cold fusion system, i.e. that he has progressed his system beyond the point of an unproven theory or concept which still requires an undue amount of experimentation to enable the artisan to make and use the inventive system for its indicated purpose. This view is also considered supported by the failure to set forth a full example of the specific parameters of an operative embodiment. One cannot rely on the skill in the art for the selection of the proper quantitative values to present an operative cold fusion system, since those in the art do not know what would be these values. See Bank v. Rauland Corp., 64 U.S.P.Q. 93; In re Corneil et al., 145 U.S.P.Q. 697.

To reiterate briefly, the examiner has presented evidence, that neither the situation of nuclear reaction products, can reasonably be expected to be reproducible or even obtainable with the present invention.

There is no reputable evidence of record that would overcome the experimental showings in the above listed references, disproving this concept of "cold fusion".

Again, there is no evidence to indicate that the applicant has so succeeded where others have failed, in arriving at an operative system that produces nuclear fusion, i.e., that he has progressed his system beyond the point of an unproven theory of concept which still requires an undue amount of experimentation to enable the artisan to make and use the invention for its indicated purpose.

It is thus considered that the examiner (for the reasons set forth above) has set forth a reasonable and sufficient basis for challenging the adequacy of the disclosure. The statute requires the applicant itself to inform, not to direct others to find out for themselves; *In re Gardner et al.*, 166 U.S.P.Q. 138, *In re Scarborough*, 182 U.S.P.Q. 298. Note that the disclosure must enable a person skilled in the art to practice the invention without having to design structure not shown to be readily available in the art; *In re Hirsch*, 131 U.S.P.Q. 198.

As discussed in section 7, applicant's claimed method of cold fusion reaction is practiced on an apparatus of non-cold fusion art that is identical to Takumoto et al. (U.S. 4,016,052). Note that it is well-settled case law that identical apparatuses operated in the same manner, must produce identical results. There is accordingly, neither an adequate description nor enabling disclosure of how and in what manner, applicant's invention is able to produce low temperature fusion reactions whereas, the identical systems and methods of operation in Takumoto et al. presumably did not produce said low temperature nuclear reactions.

Assuming for the sake of argument that applicant's invention does function in a different manner to produce a different result from that of Takumoto et al., it can only be because applicant's invention actually contains some additional critical feature(s),

component(s), etc., not found in said reference which is necessary to enable applicant's invention to function differently from any of said references so as to be able to produce a different result.

Accordingly, the disclosure is insufficient in failing to disclose said additional critical feature(s), component(s), etc., necessary to cause applicant's invention to operatively function in a different manner to produce a result different from that of said reference.

4. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 8 and 17 recite the limitation, "mechanically coupling said material." The claims are vague, indefinite and incomplete as to what the material is coupled to.

Claims 1 and 10 recite the limitation, "providing means to follow the frequency of said vibration." The claims are vague and indefinite as to what is meant by the term, "to follow."

Claims 14, 15 and 16 recite the limitation, "second mass". There is insufficient antecedent basis for this limitation in the claims because there is no "first mass" to provide reference for this so-called "second mass".

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1-20 are rejected under 35 U.S.C. 101 because the claimed invention as disclosed is inoperative and therefore lacks utility.

The reasons that the inventions as disclosed is inoperative are the same as the reasons set forth in section 3 above and the reasons set forth in section 3 above are accordingly incorporated herein.

There is no reputable evidence of record to indicate the invention has been reduced to the point of providing in current available form, an operative cold fusion system. The invention is not considered as meeting the requirements of 35 U.S.C. 101 as being "useful". Note in this respect, Page A14 of the 7/13/89 edition of The Washington Post which indicates that there is no convincing evidence that the "phenomena attributed to cold fusion would produce useful sources of energy".

The applicant at best, has set forth what may be considered a concept or an object of scientific research. However, it has been held that such does not present a utility within the meaning of 35 U.S.C. 101. See Brenner v. Manson, 148 U.S.P.Q. 689.

Additionally, it is well established that whereas here, the utility of the claimed invention is based upon allegations that border on the incredible or allegations that would not be readily accepted by a substantial portion of the scientific community, sufficient substantiating evidence of operability must be submitted by applicant. Note In re Houghton, 167 U.S.P.Q. 687 (CCPA 1970); In re Ferens, 163 U.S.P.Q. 609 (CCPA 1969); Puharich v. Brenner, 162 U.S.P.Q. 136 (CA DC 1969); In re Pottier, 152 U.S.P.Q. 407 (CCPA 1967); In re Ruskin, 148 U.S.P.Q. 221 (CCPA 1966); In re Citron, 139 U.S.P.Q. 516 (CCPA 1963); and In re Novak, 134 U.S.P.Q. 335 (CCPA 1962).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 3-7 are rejected under 35 U.S.C. 103(a) as being obvious over Takumoto et al. (U.S. 4,016,052).

They disclose a continuous electrodeposition process using a vibrating cathode in an electrolyte. They disclose an embodiment of a cathode of stainless steel and an electrolyte comprising magnesium chloride, calcium chloride and sodium chloride. Stainless steel is a material that can include nickel and nickel is a well-known material to absorb (i.e., "load") hydrogen isotopes. Either one of magnesium chloride, calcium chloride or sodium chloride has hygroscopic properties, i.e., any one of them can absorb water from the surrounding atmosphere of the Takumoto et al. apparatus. Water is also well known to contain a small percentage of deuterium.

They disclose that it is preferable to rotate or vibrate the cathode, either at a constant rate or by periodically varying the rate of rotation or vibration of the cathode. For example, they disclose a rotation of the cathode electrode at 2000 rpm (see column 13, last two lines). They also disclose the cathode electrode being vibrated with a

period of 400 cycles per min (see column 18, lines 30+). Note that rotation of the cathode inherently also results in its vibration.

Applicant's claim language reads on Takumoto et al.'s method and apparatus as follows: a) "second material" reads on the deuterium contained in the water inherently present in the electrolyte because of the hygroscopic property of certain salts in the electrolyte; b) "mechanical coupling and means to drive the vibration" reads on the expedient used by Takumoto et al. to produce the vibration of the cathode; c) "means to follow the frequency of vibration" reads on the expedient used by Takumoto et al. to set the rotation or vibration rate such as those given above.

7. Claims 8-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takumoto et al. in view of either one of Rudd (4,554,836) or Sugimoto (U.S. 4,768,381). Takumoto et al. disclose the applicant's claims except for the laser measurement of the vibration frequency of the cathode.

Either one of Rudd or Sugimoto a laser vibrometer for remotely measuring the vibration frequency of an object.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus, as disclosed by Takumoto et al., by the teaching of any one of Either one of Rudd or Sugimoto to include a laser vibrometer to gain the advantages thereof (i.e., more precise vibration information), because such modification is no more than the use of well known expedient for measuring vibration sin the art.

Case a): “Loading” is NOT identical to “Nuclear Fusion Reaction”

Claim Rejections - 35 USC § 112

8. Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The reasons are the same as those stated in section 3, paragraphs 1-11.

9. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The reasons are the same as in section 8 above.

Claim Rejections - 35 USC § 101

10. Claims 1-20 are rejected under 35 U.S.C. 101 because the claimed invention as disclosed is inoperative and therefore lacks utility. The reasons are the same as in section 8 above.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1, 3-7 are rejected under 35 U.S.C. 102(b) as being anticipated by JP-06-018683. This reference discloses a vibrating electrode apparatus for room temperature fusion comprising a palladium cathode that is resonantly vibrated. The vibrating cathode is electrochemically loaded with deuterium from an electrolyte containing said hydrogen isotope.

Applicant's claim language reads on the figures in JP-06-018683 as follows: a) "means to drive vibration" reads on line winding 10; b) "means to follow the frequency of vibration: reads on RF generator 11 that sets (i.e., "follows") the vibration frequency; c) "second mass" reads on structure that is coupled to the vibrating cathode at its exterior.

Claim Rejections - 35 USC § 103

12. Claims 8-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP-06-018683 in view of any one of Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715) or Zang et al. (U.S. 5,838,439). JP-06-018683 discloses the applicant's claims except for the laser measurement of the vibration frequency of the cathode.

Anyone of Wang et al., Steinlecher et al., or Zang et al. disclose a laser vibrometer for remotely measuring the vibration frequency of an object.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus, as disclosed by JP-06-018683, by the teaching of any one of Wang et al., Steinlecher et al., or Zang et al. to include a laser vibrometer to gain the advantages thereof (i.e., more precise vibration

information), because such modification is no more than the use of well known expedient for measuring vibration within the art.

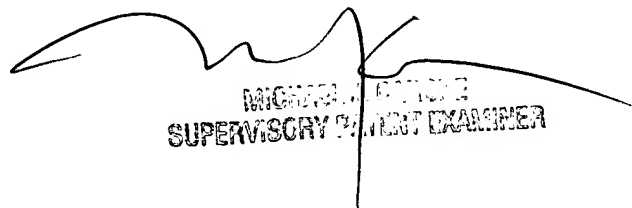
Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 703-306-5756. The examiner can normally be reached on 7:00-4:30, Mon-Fri; 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 703-306-4198. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

RJP
June 24, 2003


MICHAEL CARONE
SUPERVISORY PATENT EXAMINER